

## R E M A R K S

### Disposition of the Claims

The Examiner rejected Claims 1-7 and 16-19 under 35 U.S.C. 102(b) as being anticipated by Debbage et al., U.S. Patent No. 5,762,885.

The Examiner rejected Claims 8-15, 20 and 21 under 35 U.S.C. 103(a) as being unpatentable over Debbage et al., U.S. Patent No. 5,762,885, as applied to Claims 1-7 and 16-19 above, and further in view of Courty et al., U.S. Patent No. 4,088,736.

### Summary of the Invention

Before considering the art rejections, it is believed that a brief review of the present invention will be helpful.

Applicant has discovered a process for using a syngas stream to regenerate a catalyst/absorber system. In particular, a portion of a syngas stream produced in a gasification unit is used to regenerate a catalyst/absorber. In a preferred embodiment of the present invention, the syngas stream is cleaned prior to being used to regenerate the catalyst/absorber. More specifically, a portion of a syngas stream, which is the product of a gasification process, is cleaned in an acid gas removal unit to remove H<sub>2</sub>S. The syngas is then processed in a shift unit where the carbon monoxide and any COS present in the syngas are converted into hydrogen, carbon dioxide, and H<sub>2</sub>S. The shifter syngas is then processed in a zinc oxide bed where trace amounts of H<sub>2</sub>S are removed. The resulting, treated syngas stream is rich in hydrogen and carbon dioxide. The syngas stream is then used to regenerate a catalyst/absorber system which is used to remove NOx and SOx from a turbine exhaust gas stream. The turbine

exhaust gas stream is the remaining syngas that is the product of the gasification process.

Response to the Examiner's Rejections

Reconsideration and withdrawal of the 35 U.S.C. §102(b) rejection of Claims 1-7 and 16-19 as being anticipated by Debbage et al., U.S. Patent No. 5,762,885, are respectfully requested. To anticipate a claim, the reference must teach each and every element of the claim. "A claim is anticipated only if each and every element as set forth in the claims is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631. Respectfully, we disagree with the Examiner's assertion that the presently claimed invention is anticipated by Debbage et al. The Examiner asserts that Debbage discloses that "synthesis gas produced from a gasification unit is used to regenerate a catalyst absorber" (see February 12, 2004 Office Action at p.2, paragraph 3, lines 10-11). The Examiner makes this assertion based upon the fact that Debbage et al. discloses that regeneration gas may be comprised of hydrogen and carbon dioxide (column 5, lines 14-15) and that the regeneration gas may also be produced in a regeneration gas generator that reforms methane, a low hydrocarbon to a hydrogen-rich synthesis gas, which also comprises carbon dioxide (column 6, lines 9-16). The Examiner erroneously concludes that these disclosures concerning the regeneration gas set forth each and every element in the presently claimed invention. A regeneration gas generator is not a gasification unit and therefore does not meet the requirement of setting forth "each and every element" in the presently claimed invention. There is *nothing* in Debbage et al. that expressly or inherently describes that the regeneration gas should be a syngas produced in a gasification unit as recited in Claim 1 of the presently claimed invention. Furthermore, there is not one single reference in Debbage et al. to a gasification unit or any suggestion that it might be desirable to integrate the regeneration

process disclosed in Debbage with a gasification unit. As such, Debbage fails to anticipate each and every element of Claim 1.

Applicant respectfully requests reconsideration and withdrawal of the rejection of Claims 1-7 and 16-19 under 35 U.S.C. §102(b).

With regard to the Examiner's rejection of Claims 8-15, 20 and 21 under 35 U.S.C. 103(a) as being unpatentable over Debbage et al., U.S. Patent No. 5,762,885, as applied to Claims 1-7 and 16-19 above, and further in view of Courty et al., U.S. Patent No. 4,088,736, respectfully, Applicant disagrees. It is respectfully submitted that the rejection contradicts a basic principle inherent to 35 U.S.C. §103(a); specifically, "the reference must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination" (See MPEP §2141).

[Furthermore,] [t]o establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on the applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ 2d 1438 (Fed. Cir. 1991).

Much to the detriment of the Applicant, the Examiner has failed to establish the three basic criteria of obviousness in any of the outstanding rejections.

Reconsideration and withdrawal of the 35 U.S.C. §103(a) rejection of Claims 8-15, 20 and 21 as being unpatentable over Debbage et al., U.S. Patent No. 5,762,885, as applied to Claims 1-7 and 16-19 above, and further in view of

Courty et al., U.S. Patent No. 4,088,736, are respectfully requested. Accordingly, for an obviousness rejection to stand, each and every element in the claims must be in the reference(s), there must be a motivation to combine the references, and there must be a likelihood of success. The Examiner admits that Debbage does not teach wherein the synthesis gas is cleaned in an acid gas removal unit (see February 12, 2004 Office Action at paragraph 5, p. 4, lines 1-2). The Examiner asserts that Courty teaches a process for purifying a gas from a gasification unit containing H<sub>2</sub>S and CO<sub>2</sub>. The Examiner further asserts the following:

it would have been obvious to one of ordinary skill in the art to modify the teachings of Debbage et al., which teaches producing a carbon dioxide and hydrogen regeneration gas from a gasification unit and reducing the amount of pollutants produced from the process, such as hydrogen sulfide, based on the teachings of Courty et al., which teaches a process for reducing hydrogen sulfide from a gasification process by passing the gas comprised of synthesis gas and acidic gases, such as hydrogen sulfide and other sulfur compounds onto a bed of zinc oxide. Such modification would have been obvious to one of ordinary skill in the art, because one of ordinary skill in the art, would have expected a gasification process, which includes reducing pollutants, such as hydrogen sulfide from a gas stream comprised of synthesis gas as taught by Courty et al. to be similarly useful and applicable to a gasification process for wherein synthesis gas is used as a regeneration gas produced from a gasification unit as taught by Courty et al., to be similarly useful and applicable to a gasification process for wherein synthesis gas is used as a regeneration gas produced from a gasification unit as taught by Debbage et al.

As discussed above, Debbage does not teach or suggest a process for regenerating a catalyst absorber with syngas produced in a gasification unit. There is nothing in the disclosure of Debbage that relates to the production of syngas in a gasification unit or, moreover, the use of such a syngas to regenerate a catalyst absorber. Courty fails to cure the defects of Debbage. Courty does not teach or suggest that a cleaned syngas from a gasification unit should be used to regenerate a catalyst absorber. Instead, Courty explicitly

states that a gas containing 10-15% O<sub>2</sub> and 90-85% N<sub>2</sub> is used to regenerate the sulfurized material (see column 4, lines 52-58). And, both Examples 7 and 8 explicitly state that air is used to regenerate the solid material (i.e., catalyst) (see column 9, lines 9-10 and column 10, lines 12-14). The focus of Courty is a process for improving the purification of hydrogen from syngas using a zinc oxide bed, the improvement being the use of specific absorption materials in combination with the zinc oxide. There is no teaching or suggestion in Courty that the purified hydrogen derived from the syngas should be directed to a spent catalyst absorber for use in regenerating the spent catalyst absorber.

In that the Debbage reference is wholly unrelated to gasification and the production of syngas in a gasification unit, and because Courty does not teach or suggest that a cleaned syngas should be directed to a spent catalyst absorber for use in regenerating that spent catalyst absorber, there is nothing in either of these references that would have motivated one of ordinary skill in the art at the time of the invention to have modified the catalyst regeneration process of Debbage with any of the features of the syngas cleaning process taught by Courty.

Applicant respectfully requests reconsideration and withdrawal of the rejection of Claims 8-15, 20 and 21 under 35 U.S.C. §103(a) as being unpatentable over Debbage in view of Courty.

### Conclusion

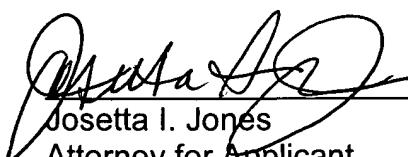
It is respectfully submitted that the references, whether considered alone or in combination, fail to disclose Applicant's claimed invention. It is respectfully submitted that all of the rejections set forth by the Examiner, and the assertions made in support thereof, have been made as if Applicant's invention were included as part of the knowledge possessed by one skilled in the art. It is clearly impermissible, however, for the Examiner to use the hindsight of the

present application in making these rejections, which it appears the Examiner has done. It is respectfully submitted that Applicant has shown that one skilled in the art at the time of the present invention, absent the teachings of the present application disclosure, would not choose only to view and consider the portions of the references which the Examiner erroneously contends he would, thereby disregarding the other portions which are also set forth therein and which Applicant submits are equally as important to understanding the references as a whole.

There is no suggestion of the presently claimed invention regardless of how the disclosures of the cited references are combined, when they are properly viewed as a whole. It is respectfully submitted that when these references are so viewed, and not in view of the disclosure of the present application, there is nothing disclosed or suggested which would lead one skilled in the art to make the wholesale modifications to the processes set forth in the references in order to arrive at the Applicant's claimed process.

For the reasons stated, Applicant respectfully submits that the rejection of Claims 1-21 should be withdrawn and that this application is in condition for allowance and notice to that effect is earnestly solicited.

Respectfully submitted,



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